# Keetslang: A Domain-Specific Language for Music Composition

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## Purpose of the DSL

Keetslang is a domain-specific language (DSL) designed for music composition. It sets temp, key composition, instrument, section of music instructions, plays, rest and replays a section. It processes this information through a .kts file. It requires a lexer, parser, and interpreter.

## Valid Characters

- Letters (A-Z, a-z) for names and keywords  
- Digits (0-9) for numerical data   
- Symbols:  
 \* `()` for grouping  
 \* `=` for assignments  
 \* `:` for action descriptions  
 \* `//` for single-line comments

## Keywords

|  |  |
| --- | --- |
| Keyword | Purpose |
| TEMPO | Sets tempo |
| KEY | Defines key |
| INSTRUMENT | Change the current instrument |
| MODULATE | Changes key |
| PLAY | Plays a note at a pitch with duration |
| REST | Adds a rest |
| REPEAT | Repeats last block or line |
| CRESCENDO | Raises volume |
| DECRESCENDO | Lowers volume |
| END | End a section or block |
| IF | Conditional execution block |
| Keets\_TRUE | Boolean literal for TRUE |
| Keets\_FALSE | Boolean literal for FALSE |

## Syntax Rules

|  |  |
| --- | --- |
| tempo must be a number | "Expected BPM number after 'tempo'" |

|  |  |
| --- | --- |
| instrument must use quotes | "Instrument name must be quoted" |

|  |  |
| --- | --- |
| play requires valid note and duration | "Invalid note or missing duration" |

|  |  |
| --- | --- |
| rest must be followed by duration | "Missing duration after 'rest'" |

|  |  |
| --- | --- |
| section must open and close with braces | "Expected '{' after section name" |

|  |  |
| --- | --- |
| repeat must be a positive integer | "Repeat count must be a number" |

**Top-Level Grammar**

<program> ::= { <statement> | <section> }\*

<statement> ::= <tempo\_stmt>

| <key\_stmt>

| <instrument\_stmt>

| <repeat\_stmt>

<section> ::= "section" <identifier> "{" { <instruction> }\* "}"

**Statements**

<instruction> ::= <play\_stmt>

| <rest\_stmt>

| <repeat\_stmt>

<tempo\_stmt> ::= "tempo" <number>

<key\_stmt> ::= "key" <key\_name>

<instrument\_stmt> ::= "instrument" <identifier>

<repeat\_stmt> ::= "repeat" <number>

**Instructions**

<play\_stmt> ::= "play" <note> <duration>

<rest\_stmt> ::= "rest" <duration>

struct Command {

enum { CMD\_PLAY, CMD\_REST, CMD\_TEMPO, CMD\_INSTRUMENT, CMD\_REPEAT } type;

char note[4];

char duration[10];

};

**Example .kts file**

tempo 120

key C\_major

instrument piano

section verse {

play C4 quarter

play E4 quarter

rest eighth

play G4 half

}

section chorus {

play A4 quarter

play F4 quarter

repeat 2

}